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ABSTRACT

The guidelines presented here for regional, national, or international referral centers are concerned with the effective exploitation of available information inventories. Defined as agencies which refer inquirers to the sources most likely to provide the desired information, these centers are recognized by UNESCO's UNISIST program as necessary components of any major information system. Part I of the guidelines establishes the definition and outlines the functions of information source inventory update, referral, publication of directories, and systems improvement. Part II discusses methods for creating and operating a referral center: possible locations, resources required, and working procedures (including models and actual examples); problems of publications, publicity, and organization are briefly considered. Part III presents a brief overview of possible uses of the mass of information collected through inventory preparation or user assessments. Part IV discusses the need for international cooperation among referral centers and the feasibility for development of a worldwide referral network. The appendices include a step by step diagram for creating and developing a referral center, a directory of international referral centers, and a bibliography of international directories of referral sources. (Author/RAA)

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Guidelines on Referral Centres

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PGI/79/WS/4
Paris, March 1979

United Nations Educational, Scientific and Cultural Organization

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SUMMARY

Part I defines what is meant by a referral centre. The various functions performed by referral centres are then examined: not only do such centres keep inventories of information sources up to date, and refer users to sources in response to inquiries, but they also publish directories of sources and can contribute, through feedback from the users and sources, to the improvement of the information system in which they operate.

Part II discusses methods for creating and operating a referral centre: possible locations, resource requirements, personnel and working procedures. Actual examples and models of necessary forms are presented. The problems of publicity, publications and organization are briefly mentioned.

Part III is a brief overview of possible uses of the mass of information collected through the preparation of inventories or through assessments submitted by the users.

Finally, Part IV of the Guidelines presents the need for international co-operation among referral centres and the feasibility for gradual development of a world-wide referral network.

As appendices, in addition to a diagram of the steps in creating and developing a referral centre, one will find addresses of international referral centres, and titles of international directories of information sources.

PREFACE

National information systems of both industrialized and developing countries, as well as information systems organized at the international level, are facing, along with other major problems, that of dealing with increasing numbers of clients and more specialized needs. In order to better serve the users, systematic effort is needed to bridge the gap which too often separates them from the information they require.

Since the beginning of its UNISIST Programme+ in 1973, Unesco has promoted, as a principal approach to improving this situation, the gradual implementation of the first recommendation of the UNISIST feasibility study which stated that "the basic philosophy of UNISIST makes it mandatory to develop international programmes for sharing the work and products of information transfer at each stage of the process through the voluntary co-operation of all parties concerned. As a step in this direction, UNISIST adherents should be called upon to extend their efforts to survey information services of national, regional or international scope, and to provide for their stepwise integration into a world referral network".(1) (emphasis added)

Much work has already been accomplished on surveys or inventories of information services, which generally take into account the greatest possible number of services within a given country or region. The UNISIST Secretariat has commissioned and published Guidelines on the Conduct of a National Inventory of Scientific and Technological Information and Documentation Facilities(2) which have now been applied in many countries.

The present Guidelines are concerned with the effective exploitation of inventories through operational referral centres accessible to all potential users. The necessity and value of such centres is increasingly recognized, and it is hoped that the Guidelines will assist interested countries and organizations by explaining the functions of referral centres, and recommending practical procedures they might adopt.

The Guidelines were compiled by Mr. A. Dulong under Unesco contract and finalized in collaboration with an international panel of reviewers whose names appear on the following page; their participation and assistance are sincerely appreciated.

The document therefore presents a synthesis of various opinions which are not necessarily those of Unesco and do not commit the Organization.

Two national centres, the National Referral Center (United States) and SOS-DOC (France), have been accorded more emphasis than others in the Guidelines as far as procedures and model forms are concerned. It should be noted that examples could equally well have been provided from other referral services.

Comments and suggestions on the Guidelines are welcomed from the readership, and can be addressed to:

Division of the General Information Programme
Unesco
7 place de Fontenoy
75700 Paris, France

+ Programme for co-operation in the field of scientific and technological information, since 1977 an integral part of the General Information Programme of Unesco.

Mr. J.R.P. Alvarez-Ossorio
Director
Instituto de Información y Documentación en Ciencia y Tecnologia
Madrid, Spain

Mr. N.B. Arutiunov
Head of the Department for Scientific and Technical Information
State Committee for Science and Technology of the USSR Council of Ministers
Moscow, USSR

Ms. A. Audollent
Responsable SOS-DOC
and
Mr. J. Michel
Secrétaire Permanent
Bureau National de l'Information Scientifique et Technique
Paris, France

Mr. C.F. Burk, Jr.
Director, Canada Centre for Geoscience Data
Ottawa, Canada

Mr. L.G. Côté
Chief of Network Planning and Research
and
Ms. I.M. Heseltine
Joint Acting Director
Canada Institute for Scientific and Technical Information
Ottawa, Canada

Ms. A. David
for the ICSU Committee on Data for Science and Technology
Paris, France

Mr. M.S. Day
Deputy Director
National Library of Medicine
Bethesda, U.S.A.

Mr. H.A.I. Goonetileke
Librarian
University of Sri Lanka
Peradeniya, Sri Lanka

Sir H. Hookway
Chief Executive
The British Library Board
London, United Kingdom

Mr. C. Kecskemeti
Executive Secretary
International Council on Archives
Paris, France

Mr. A. Khosla
Director
INFOTERRA
United Nations Environment Programme
Nairobi, Kenya

Mr. Lee Kum Tatt
Chairman
Singapore Institute of Standards and Industrial Research
Republic of Singapore

Mr. J. Leymarie
for the Executive Commission
Association of International Libraries

Mr. J. Meyriat
General Secretary
International Committee for Social Science Information and Documentation
Paris, France

Mr. E. Molino
Co-ordinator of Information Systems Development
Consejo Nacional de Ciencia y Tecnologia
Mexico City, Mexico

Mr. R.M. Morse
Associate Director for Marine Sciences
and
Ms. E. Yeates
Library and Services Division
Environmental Data and Information Services
Washington, D.C., U.S.A.

Mr. A. Neelameghan
Project Co-ordinator
Post-Graduate Course for Information Science Specialists in South-East Asia
Quezon City
Philippines

Mr. J.F. Price
Assistant Chief for Reference and Referral Services
National Referral Center
Washington, D.C. U.S.A.

Mr. S. Radhakrishna
Scientific Secretary
ICSU Committee on Science and Technology in Developing Countries
Bangalore, India

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PART I - INTRODUCTION

1.1 What is a referral centre?

A five-language dictionary published by Unesco, The Terminology of Documentation, shows that the English language term "Referral Centre" is translated by "Centre d'orientation" in French, "Spravotchno-informatsionnyi tsentr" in Russian, "Informationsvermittlungsstelle" in German and "Centro de referencia" or "Centro de orientación" in Spanish. The following definition is proposed: "an agency which refers inquirer to the source(s) most likely to provide the desired information".

The English neologism "referral" - from the Latin root "refer", to take back - may be translated less ambiguously in French and Spanish by "orientation" and "orientación" rather than "référence" and "referencia", although the latter are preferred by some specialists. The words "référence" and "referencia" often found in expressions such as bibliographic reference, reference room, reference work and the like, may lead users to believe that the referral centre will provide them directly with the information they need, which is generally not the case.

Strictly speaking, referral centres limit user services to suggesting sources likely to satisfy the clients; otherwise duplication of effort and considerable increase in workload of the centres inevitably result. As a basis for their activity, referral centres are normally responsible for identifying and characterizing information sources, and can also provide other services to the information network within which they function.

A "source of information" is an entity able and willing to supply information in response to requests. As a general principle a referral centre's files are limited, at least during the initial phase, to institutionalized information services: documentation centres, libraries, data centres, archives, bookstores, etc. In keeping with its terms of reference a referral centre may later extend its files on a case-by-case basis to other institutional sources which produce or provide information: laboratories, professional and cultural associations, consulting firms, museums, etc. While individual specialists are certainly good sources of information, referral centres should direct inquirers to them only when known institutional sources have been exhausted; otherwise, the specialists will feel they are losing valuable time, and the reputation of the referral centre will suffer.

Referral inquiries should, in principle, request only information on available sources, but in practice they often go beyond this point. We shall see later (2.6.1) the selections which must be made and the methods which can be used to solve these problems.

Finally, while existing referral centres have worked to a large extent in the field of scientific and technical information (including the social sciences), the methods developed for referral should apply equally well to many other fields of information.

1.2 Why a referral centre?

Information work, particularly scientific and technical documentation, has grown into an industry during the past 20 years. There are more than 10,000 scientific and technical information systems in the world; as to individual sources, complete statistics are not available, but a figure of several hundreds of thousands, very unevenly distributed throughout the the world and within individual countries,

would be reasonable. The number of information systems and sources is now such that it is impossible to find information without the assistance of good directories and specialists trained in their use.

The problem is not limited to growth in volume. As knowledge grows and develops new concepts appear and new areas are opened for research and therefore publication. Information systems and sources have consequently become highly specialized and even the most comprehensive among them cover only given fields of interest or limited geographical areas. Directories are therefore not enough; an adequate understanding of the structures of science, technology and other fields of endeavour is necessary if questions are to be directed to the correct sources.

As a result of these tendencies, the referral process is increasingly seen as an essential first step in the acquisition of information, and the referral centre as a necessary institutional link between users and information sources.

In addition, one must consider the need for referral services from the point of view of the growing costs of maintaining information systems and sources. Very few systems or sources are financed exclusively from user fees, and most are in fact assisted by a subsidy from a sponsoring organization, e.g. from a ministry, a research centre, an industrial firm, an association, a university or a local government. While it is unlikely that this situation will rapidly evolve in a direction more favourable to the funding agencies involved, it is in the interest of all concerned to improve the overall effectiveness of information sources by directing to them the greatest number of users capable of benefiting from their services.

A referral centre therefore has a promotional role to play within an information network. It assists potential users of information and provides a type of publicity for the existing sources of information. In so doing, a referral centre contributes to cost-effectiveness in two ways: through more effective use of information resources and also by enhancing the effectiveness of the users themselves.

1.3 Functions of a referral centre

Service to users consists essentially of receiving referral inquiries from a wide variety of clients and answering them through appropriate channels (telephone, mail, telex). In many cases referrals will lead to permanent links between users and sources, thus limiting the increase in demands upon the centre. Gradually, as source files are established and experience is acquired, services can be expanded to encompass publication of directories of libraries, documentation centres and other information sources.

Referral centres also have a contribution to make in assessing the effectiveness of information sources, even if this is not their primary goal. Strategically located and impartial, they can perform the very important function of detecting shortcomings, gaps or duplications in service which hamper the operation of information networks.

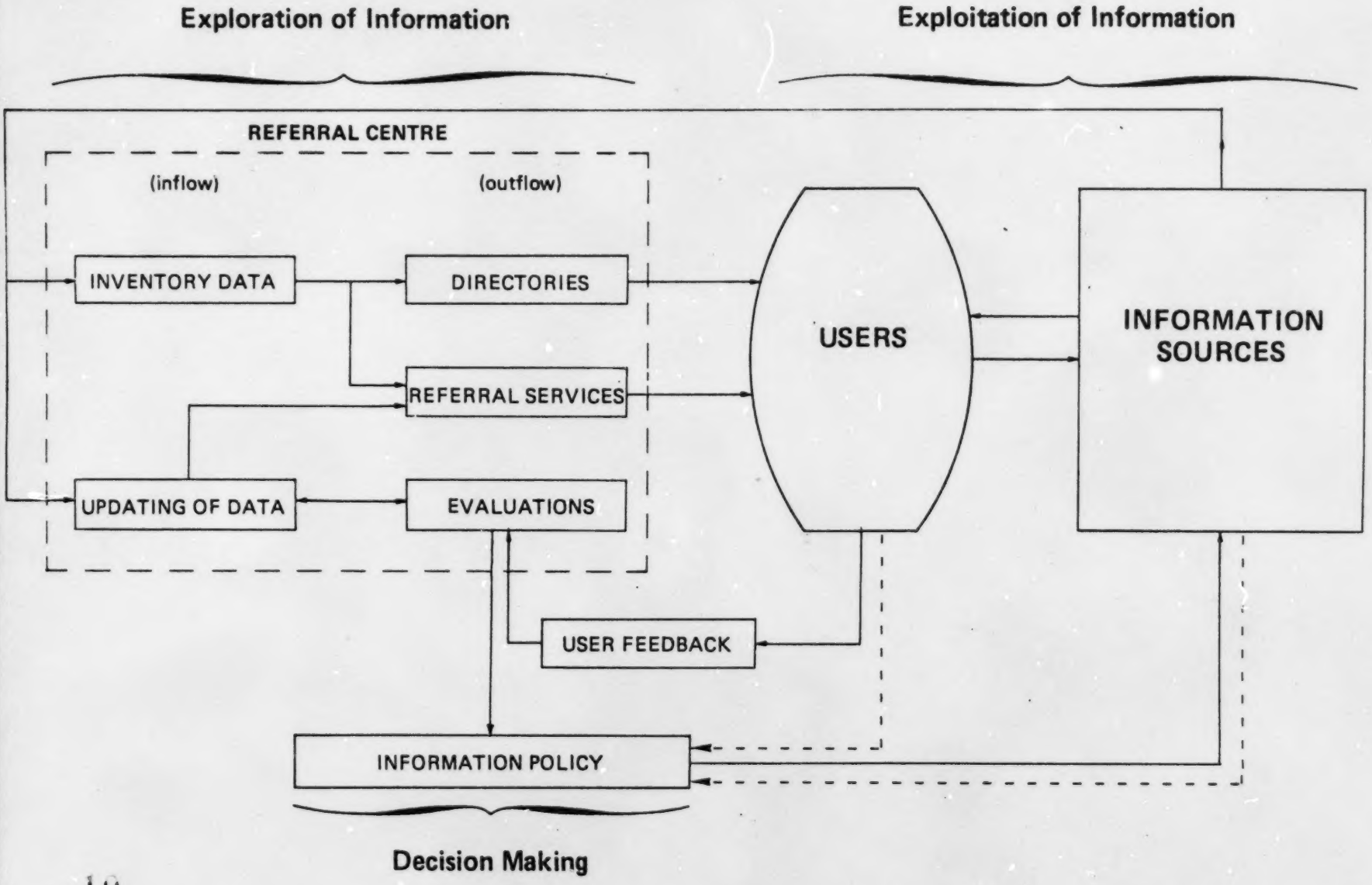
At the national level, the functions of a referral centre should be designed on the basis of national priorities and fully integrated into the national information system. Figure 1 (page 4) presents a schematic functional model of a national information system from the point of view of a referral centre and its environment. Such a total network includes, either formally or informally, three sub-systems: a decision-making system where information policy is elaborated; a system of exploitation of information which constitutes the essential part - users and sources; and a system of exploration for information including the key function of referral of users.

In a country with well-established information infrastructure, the primary function of the referral centre(s) will be to ensure effective use of national sources of information, and only occasional specialized requests will be referred to foreign sources. For other countries where the national information system is less developed, a referral centre may be called upon to direct a larger proportion of requests to appropriate foreign sources, and will thus have special responsibility as an international contact point within the information system.

A referral centre can also serve at the national level as an instrument for information policy by consolidating operational experience and user comments into useful evaluation and statistics on the operation of the national information system. Governmental and other decision-makers can ultimately make use of this information to help improve the overall system and its components.

There also exist specialized international referral centres. Many of these are in fact the central nodes of specialized international referral networks composed of national and regional referral centres. The role and function of such networks will be treated further in Part IV.

Figure 1: GENERAL MODEL OF A NATIONAL INFORMATION SYSTEM



PART II - CREATION AND DEVELOPMENT OF A REFERRAL CENTRE

2.1 Possible locations

Referral centre already exist in many countries. Most form part of a larger agency, usually the national library or a national documentation centre, as is the case in Australia, Morocco, the USSR, the United Kingdom and the United States. An example of a more autonomous centre is SOS-DOC in France, which defines its own rules and operating methods and is housed in Paris offices rented through its own efforts; it is subsidized by the Ministry of Industry and supervised by the Association Nationale de la Recherche Technique (National Technical Research Association) and the Bureau National de l'Information Scientifique et Technique (National Scientific and Technical Information Office).(3)

In large countries where the referral function cannot conveniently be handled by a single centre, it is sometimes performed by a network of specialized centres which co-operate in finding the correct response. An example of a mission-oriented national centre is the Canada Centre for Geoscience Data.(4) Even in countries where referral is considerably decentralized there may still exist a principal referral centre responsible for providing a national focus for referral activities and for centralizing the inventory of sources, e.g. the National Referral Center in the United States.(5) In the USSR, where referral services are widely established at all levels of the State System for Scientific and Technical Information, the All-Union Institute for Scientific and Technical Information (VINITI) and State Public Library for Science and Technology (GPNTB) are major national referral centres. They produce a broad range of published reference tools, which constitute the basis for referral activities of all other information bodies in the country. A very important role is performed by the regional information centres, each of which is responsible for referral activities within its territory as well as for channelling central information services to the local users.(6)

Considering what has been said so far, it appears desirable for every country to have at least one referral centre located where it is easily accessible to most potential users, most probably in or near the capital city, possibly with branches or contact points in other principal cities. Several experts consulted in the course of the present study have recommended that each national referral centre be closely associated, when possible, with a strong existing national information centre. This solution can facilitate prompt access of the users to the actual information they need and can improve overall cost-effectiveness by increasing usage and enabling specialization of staff. The division of responsibility between the referral centre and other services of the host institution should be clearly delimited, and since the centre may also function as an objective measurement instrument (see Part III), it is desirable that it have some autonomy.

The referral centre will most often be established as a section of the national documentation centre or of the national library; alternatively specialized sections could be formed within each of these organizations, e.g. with responsibility for scientific, technological, commercial and economic referrals within one and for cultural and social science referrals within the other. When national priorities indicate the creation of a highly specialized referral centre (e.g. in agriculture, industry or environment) it can be established within the foremost information centre specializing in the field; in this case the active participation of the concerned specialist communities (e.g. a professional organization) may also be warranted.

A number of countries or agencies have organized a question-answering service which goes beyond referral and, whenever possible, actually provides the client with the desired documentation; however, when the centre contacted knows of another centre which is better equipped to meet the needs of the client it acts as an ordinary referral service, directing the inquiry to the other centre.

The establishment of a regional referral centre or a regional network of national centres may also prove useful, especially in serving the needs of developing countries. The basic working methodology covered in the present guidelines is expected to be applicable to such programmes.

2.2 Resources and budget

The size, personnel and budgetary resources of the centre must obviously match the tasks assigned to it. At the outset, a centre may be staffed by a single part-time specialized documentalist, who will also perform other related duties (inventories, preparation of directories, etc.) until such time as the volume of transactions requires full-time attention and, later, additional staff.

As an example, the French referral centre SOS-DOC was first staffed by an engineer-documentalist working part-time, then by two full-time documentalists with science degrees and finally four documentalists; they not only carry out referral work totalling an average of 300 questions per month, but also maintain files and prepare directories.

The National Referral Center for Science and Technology which is part of the United States Library of Congress, was staffed in 1975 by 18 persons assigned to preparing resource inventories and computer-produced directories, replying to inquiries, and performing other duties within the Science and Technology Division of the Library of Congress. Four employees were assigned to answer requests from users. The service handled at that time more than 250 questions per month.

The figures for these centres indicate that 100 inquiries per month fully justify the appointment of a full-time, qualified employee who will find it difficult to handle all the tasks related to the job, such as statistics, directories, etc.

The necessary material resources for a centre consist of offices sufficiently spacious to accommodate visitors, the indispensable telephone line(s) (direct outside lines preferred) and ultimately the telex. The remaining material is standard: shelves for directories, file cabinets, files, and possibly a photocopier or a microform reader. The budget for capital investment should thus foresee funds for office furniture, equipment and documentation. The operating budget consists essentially of salaries for specialized personnel and perhaps a secretary, possibly the rental cost of office space, telephone and telex expenses, and postage. Other smaller items in the budget include office supplies and current documentation. If the mission assigned to the centre is a substantial one, and if it is allowed to provide fast, reliable services, major telephone and telex expenses, which should not be underestimated in the planned budget, will surely result.

In this context, the telex remains the most economical means of communication, although not the best from the point of view of easy dialogue between the requester and the referral specialist.

It is difficult to provide budgetary figures "a priori", since salaries and other costs vary widely from country to country. One can cite, to give a rough measure, the operating budget of SOS-DOC in its initial phase (in 1975) of 413,000 French francs, or approximately 97,000 United States dollars. Other centres are more costly, but a referral centre can also be created with a much smaller budget, providing for the salary of a qualified specialist and accessories corresponding to the local conditions and objectives.

2.3 Inventory of information sources

2.3.1 Coverage and methodology

In order to be able to give information it is necessary to be thoroughly acquainted with the information sources available. The first step, therefore, is to take inventory of the sources, if this has not already been done. The inventory must be carefully organized and carried out systematically, possibly under the responsibility of an appropriate official agency and/or a professional association of librarians, documentalists and archivists.

The subject scope and geographical coverage of the inventory should be carefully defined in accordance with the missions of the referral centre and of the inventory itself, which in turn will depend on national priorities and on existing national and international information services.

Which sources should be included in the inventory? The advantages of limiting coverage to institutional sources of information have already been seen (1.1), but would an inventory of public agencies be sufficient? Certainly not: the wealth of documents located in a country constitutes a whole; all relevant sources should be identified, including in so far as possible those within private enterprises and, when useful, those of associations, professional and labour organizations, embassies (cultural centres, scientific attachés) and so on.

Archives provide valuable information resources in the form of unpublished records and manuscripts. Particular attention should be given to archives located within universities, enterprises and private institutions, which are frequently overlooked as information sources.

Specialized book stores are relatively rare in all countries. They often constitute very useful sources of information, for consulting documents as well as for locating and buying them. Their sales personnel are often themselves referral specialists capable of directing users to external documents or sources as well as to works available on the shelves.

If a basic tool for national information policy and general referral services is required, the inventory will first concentrate on a broad survey of information services within the national information system. If specialized applications are envisaged, institutional coverage may be appropriately modified. For example, an inventory supporting referral services for small-scale industry might well include institutions with the following types of functions:

feasibility studies and systems analysis;

engineering and equipment design;

computing, computer leasing and software development;

market surveys, forecasting and trend analysis;

management information services and records management;

extension services;

editorial work.

Although many of these functions are not considered information services in the strict sense, they do involve collection, analysis or transfer of information needed by the chosen user community.

Whatever its scope the inventory must be prepared with great attention to details. Survey methodology should be discussed by the responsible specialists before every survey or subsequent update, and the basic questionnaire, once developed, must be tested and include clear explanatory notes. If the inventory is not carried out directly by the service concerned, control inspections should be effected upon completion of the work in a certain number of sources to verify that the inventory results indeed correspond to the real situation.

Should it be decided to extend the inventory to cover individual experts and/or information sources outside the host country, extreme care should be taken in applying a methodology which ensures that only appropriate sources which are willing to co-operate in referral are included.

2.3.2 Questionnaires

In the absence of a single standard inventory questionnaire at the international level, one may profitably choose among available model questionnaires, remembering that it is always preferable to use a good model questionnaire rather than to devise a new one. In the future, it will be desirable to establish international norms, as in other areas, since use of compatible questionnaires by all parties concerned will permit inventory mergers (e.g. on a regional basis) and facilitate comparison and exchange of inventories.

UNISIST has commissioned, published and disseminated a study on the question of inventories: Guidelines on the Conduct of a National Inventory of Scientific and Technological Information and Documentation Facilities.(2) This study includes (as Appendix B) a very detailed questionnaire presented in appropriate form for computer input. Countries which have already carried out a national inventory based on such a questionnaire will be able to use the results as a basis for referral services. It should be noted, however, that information on fees charged for services, not explicitly requested in the UNISIST inventory questionnaire, should also be obtained.

Depending on the aims of their survey, other countries may choose between such a full inventory questionnaire, designed as a major tool for information policy (but rather time-consuming to fill out) and a simpler questionnaire for the purpose of referral services only. We present, in this context, a model questionnaire based on that of the National Referral Center of the United States.

This model questionnaire (pp. 10-12) begins, as it normally the case, with a heading indicating the names of the agencies sponsoring the survey (e.g. a ministry or government department) and those carrying it out (e.g. a specialized section of the national documentation centre). One should also foresee, at the beginning or end of the questionnaire, a space for the name of person who fills it out, so that he can be contacted if further details are needed.

Starting from the present model questionnaire, or the more complete model offered in the UNISIST inventory guidelines,(2) questionnaires can easily be adapted to local conditions or to a particular subject field. The minimal amount of information to be requested consists of the name of the source, its address and telephone, its specialization and conditions for user access. Although sufficient detail is required, it should be recognized that very detailed source descriptions are more likely to lose validity with the passage of time, leading to further surveys and significant updating of files from one year to the next. One may, of course, carry out a rapid preliminary survey to furnish both an initial inventory and material for a later in-depth study.

Explanatory notes should indicate (see for example the UNISIST inventory guidelines) the significance of each section of the questionnaire, removing in so far as possible all ambiguities. In addition, a letter explaining the overall purpose(s) of the inventory and its benefits for the participating sources may ensure more complete co-operation. The questionnaire will be understood even better if accompanied by a sample copy of a properly completed form, and perhaps even examples of errors to avoid; such examples could be obtained through preliminary tests by specialists. Verifications and some field assistance would supplement these precautions.

Some referral centres such as SOS-DOC do not send out questionnaires, but instead complete their source files on the basis of interviews or visits. In some cases it may thus be preferable to have an experienced and cohesive team from Headquarters visit the officials in charge of information sources in order to assess their holdings and services. A questionnaire similar to those described above could also usefully serve as a basis for such interviews.

INFORMATION SOURCE INVENTORY QUESTIONNAIRE

HEADING

identifying agencies sponsoring and implementing the survey

A. COMPLETE NAME (AND ACRONYM) OF INFORMATION SOURCE: Indicate complete organizational hierarchy (i.e. Department, Division, Section(s) - List only individuals directly responsible for information services)

B. ADDRESS: Give both mail and street address if they are different.

CITY: _____ POSTAL CODE: _____

COUNTRY: _____

C. TELEPHONE: Include Area Code: _____ TELEX/CABLE: _____

D. ORGANIZATIONAL CHARACTER OR HIERARCHICAL DEPENDENCE OF INFORMATION SOURCE:

Check only one.

- ☐ Governmental or Semi-Governmental Administrative Body (ADM)
  - ☐ National Government
  - ☐ Provincial Government
  - ☐ Local Government
  - ☐ Foreign Government
- ☐ University or College (UNV)
- ☐ Research Centre (RC)
- ☐ Commercial (COM)
- ☐ Consulting Firm (CF)
- ☐ Association or Society (ASN)
- ☐ Other Non-profit Organization (NP)
- ☐ Individual (IND)
- ☐ Other (OTH)

E. MISSION: Include special projects, capabilities, and activities

F. BROAD SUBJECT AREAS COVERED: Check all that apply.

- ☐ Physical Sciences
- ☐ Life Sciences (including Agriculture and Medicine)
- ☐ Technology (Engineering)
- ☐ Humanities, Cultural and Social Sciences

G. SUBJECT SCOPE: Suggest subject descriptors.

H. SPONSORSHIP: If the information source is sponsored to any degree by organization(s) other than the parent body, check the appropriate boxes below:

- ☐ National Government
- ☐ Provincial Government
- ☐ Local Government
- ☐ Other

NAMES OF SPONSORING ORGANIZATIONS: _____

_____

_____

I. SERVICES: Check all services provided by the information source to outside users.

Document services

- ☐ Permits onsite use of collections
- ☐ Provides direct loan service
- ☐ Provides interlibrary loan service
- ☐ Provides reproduction services
- ☐ Provides microform services

Analytic services

- ☐ Answers questions, provides reference services
- ☐ Provides retrospective-search services
- ☐ Provides current-awareness (SDI) services
- ☐ Provides abstracting & indexing services
- ☐ Prepares syntheses (reviews)
- ☐ Evaluates or analyzes numerical data
- ☐ Provides translation services
- ☐ Provides information on R & D in progress
- ☐ Makes referrals to other competent sources
- ☐ Distributes publications
- ☐ Provides magnetic tape services
- ☐ Provides advisory or consulting services
- ☐ Conducts seminars or workshops
- ☐ Other services (describe)

_____

_____

J. FEES: Are the above services free to all users, at cost to some users and free to others, at cost to all users, etc.? Explain _____

_____

_____

K. CLIENTS: Are the above services available to anyone or only to special groups?

_____

_____

_____

L. PUBLICATIONS: Check any items published by the information source. Indicate pertinent titles and frequency in space provided.

- ☐ Abstracts or indexes
- ☐ Directories
- ☐ R & D summaries
- ☐ Bibliographies
- ☐ Data compilations
- ☐ Other (describe) _____
- ☐ Critical reviews
- ☐ Standards
- ☐ Specifications
- ☐ Books
- ☐ Technical reports
- ☐ State-of-the-art reviews
- ☐ Articles in journals
- ☐ Periodicals (give titles below)
- ☐ Reprints, conference papers, etc.

_____

TITLES: _____

_____

M. COLLECTIONS: Describe any significant and/or special holdings (literature, data, specimens, maps, artifacts, microforms, etc.) Estimate size of individual collections.

_____

_____

_____

N. COMPUTERIZED DATA: Which, if any, of your collections are computer based?

_____

_____

Availability of computer programmes and/or data base(magnetic tapes or on-line access):

_____

_____

_____

O. NAME AND TITLE OF PERSON PREPARING FORM: _____

_____

DATE: _____

USE SPACE BELOW OR A SEPARATE SHEET TO PROVIDE ANY ADDITIONAL INFORMATION

_____

2.3.3 Classification by subject

Once the inventory of sources has been created, it is necessary to order the sources in some way and code them for retrieval. Two options for subject coding are available: either the use of a classification scheme enabling assignment of a single subject code to each source, or the use of a post-co-ordinate system of indexing.

The use of a classification scheme holds at least two advantages: it is easier to employ in a manual system of files (at the time of handling replies) and it is also easier to use in compiling statistics on sources (see 2.6.4). A very concise scheme (less than 100 categories) is normally advisable in referral work, particularly at the outset of a referral centre.

One such scheme, appropriate for referral purposes, has already been proposed in the UNISIST inventory guidelines (card 05 of the questionnaire in Appendix B).(2)

An alternative approach, especially advisable when it is thought that more detailed coding will ultimately be needed, is to select the initial classification scheme from the major headings of a detailed broad system such as DC (Dewey Classification) or UDC (Universal Decimal Classification), from BSO (Broad System of Ordering), or from a specialized classification scheme in the case of a specialized centre. It is convenient that the detailed system chosen, as are the three mentioned above, be equipped with an alphabetical index.

Although it is less detailed than the other two systems mentioned, BSO, recently developed by the International Federation for Documentation and Unesco, holds the advantage of being specially designed for referral work, i.e. for identification of information sources as opposed to individual documents. A listing of 76 principal areas in BSO, suitable as an initial classification scheme, are reproduced on the following page; for greater detail readers are referred to the full schedule and index.(7)

If the centre knows that it will have to answer very detailed and precise questions, a hierarchical classification scheme is not advisable, and it will be more convenient to represent (index) each source by a number of topics (perhaps three to ten) normally taken from an established list of terms.

At the time of retrieval the terms corresponding to a given query are grouped (co-ordinated) so that together they represent as exactly as possible the different subject aspects of the query. Such post-co-ordinate systems require special tools (e.g. punched card systems) when used with manual files and do not facilitate statistical compilations. They thus should be used only when necessary.

Principal Areas of the Broad System of Ordering

100 KNOWLEDGE GENERALLY
112 PHILOSOPHY
116 SCIENCE OF SCIENCE & KNOWLEDGE
118 LOGIC
120 MATHEMATICS
125 STATISTICS & PROBABILITY
128 COMPUTER SCIENCE
140 INFORMATION SCIENCES & DOCUMENTATION
150 COMMUNICATION SCIENCES & TECHNIQUES
160 SYSTEMOLOGY & CYBERNETICS
165 MANAGEMENT
182 RESEARCH
200 SCIENCE & TECHNOLOGY (TREATED TOGETHER)
203 NATURAL SCIENCE
205 PHYSICAL SCIENCES
210 PHYSICS
228 CRYSTALLOGRAPHY
230 CHEMISTRY
250 SPACE & EARTH SCIENCES (TREATED TOGETHER)
252 ASTRONOMY & ASTROPHYSICS
260 EARTH SCIENCES (= GEOSCIENCES)
262 GEODESY & SURVEYING
263 GEOPHYSICS
270 GEOLOGY
290 GEOGRAPHY
300 LIFE SCIENCES (COLLECTIVELY, incl. AGRICULTURE & MEDICINE)
310 BIOLOGICAL SCIENCES
320 MICROBIOLOGY
330 BOTANY (= PLANT BIOLOGY
340 ZOOLOGY (= ANIMAL BIOLOGY)
360 AGRICULTURE (= FARMING = PLANT & ANIMAL HUSBANDRY TOGETHER)
368 VETERINARY SCIENCE (= VETERINARY MEDICINE)
370 FORESTRY
380 WILD LIFE EXPLOITATION
384 HUNTING (INCL. SHOOTING AND TRAPPING)
387 FISHING AND FISHERIES
390 ENVIRONMENT
410 BIOMEDICAL SCIENCES (= MEDICAL SCIENCE = HUMAN BIOLOGY AND MEDICINE TOGETHER)

420 MEDICINE (= HEALTH SCIENCE)
445 BEHAVIOURAL SCIENCES (GENERALLY)
450 PSYCHOLOGY
460 EDUCATION
470 HUMAN NEEDS (incl. WORK & LEISURE)
480 SPORT(S) & GAMES
500 HUMANITIES, CULTURAL & SOCIAL SCIENCES (TREATED TOGETHER)
510 HISTORY & RELATED SCIENCES
520 AREA STUDIES (LIFE, SOCIETY, CULTURE)
530 SOCIAL SCIENCES (GENERAL STUDIES & METHODS)
540 POLITICAL SCIENCE & POLITICS
550 PUBLIC ADMINISTRATION (= GOVERNMENT ADMINISTRATION)
560 LAW, JURIDICAL SCIENCES
570 SOCIAL WELFARE, RELIEF & SERVICES
580 ECONOMICS
600 TECHNOLOGY (= ENGINEERING)
640 NUCLEAR ENGINEERING & TECHNOLOGY
650 ELECTRONIC & ELECTRICAL TECHNOLOGIES
670 THERMAL ENGINEERING & APPLIED THERMODYNAMICS
680 MECHANICAL ENGINEERING
710 CONSTRUCTION TECHNOLOGY
730 ENVIRONMENTAL TECHNOLOGY (incl. POLLUTION CONTROL)
740 TRANSPORT TECHNOLOGY & SERVICES
760 MILITARY SCIENCE & TECHNOLOGY
780 MINING
800 PROCESS INDUSTRIES
840 FOOD, DRINKS & STIMULANTS TECHNOLOGY
850 NON-METALLIC MINERAL TECHNOLOGIES
860 METAL TECHNOLOGY, METALLURGY & METAL PRODUCTS
877 TEXTILES TECHNOLOGY
890 MANUFACTURE & TECHNOLOGY OF PARTICULAR PRODUCTS NOT SCHEDULED IN THE FOREGOING FIELDS 600 to 877
910 LANGUAGE, LINGUISTICS & LITERATURE (TOGETHER = PHILOGY)
920 SPECIAL PHILOLOGICAL STUDIES (LANGUAGE & LITERATURE)
940 ART(S), esp. FINE ARTS
950 MUSIC & THE PERFORMING ARTS (TREATED TOGETHER)
951 MUSIC
955 PERFORMING ARTS (incl. THEATRE)
970 RELIGION & ATHEISM (TREATED TOGETHER)

2.4 The files (manual or computerized)

Once the inventory data have been gathered and classified or indexed, it is necessary to prepare two files: one by source and one by subject. For the source file, the preparation, use and updating of individual records are easier when a standardized format is used. As an example, a model source file format (based on the one used by SOS-DOC) is given below:

SOURCE RECORD

ACRONYM:

COMPLETE NAME

ADDRESS:

Telephone: **Telex/cable:**

SUBJECT SCOPE:

MISSION:

CLIENTS:

FUNCTION	SERVICES	Yes/No	Remarks	Fees	Official-in charge
Document services	books periodicals other				
	consultation loans reproduction microform				
Analytic services	question-and-answer bibliographic syntheses numerical data				
Other services					

REMARKS:

The back of the form is used to record information regarding evolving relationships between the referral centre and the source:

DATES				Queries Referred (Ref.Nos.)	REMARKS
VISIT	TELEPHONE	CORRESPONDENCE Sent	Received		

ADDITIONAL REMARKS:

The records are filed in alphabetical order by acronym or by full name of the source (according to whichever is more commonly used). Each record contains a summary of the full information given by the inventory questionnaire. The latter are kept on file, in hanging folders in a file cabinet for example, for quick consultation when needed.

The file by subject can be much more concise: each record contains only the subject code, which is the heading, and the acronym(s) or name(s) of the relevant source(s) as the body of the record. This file is ordered according to the classification scheme chosen or in alphabetical order of the terms which have been used for indexing. It is used only to back up the memory of the referral specialist, when he is searching for the source(s) likely to respond to a request on a given subject. For additional information, the source file can be consulted.

One will encounter in the above context the classical difficulties of subject files and retrieval by subject. The centre can utilize available classification schemes or thesauri or develop its own classification scheme or list of terms (key-words). (See 2.3.3)

In addition to the source and subject files, it may sometimes prove advisable to develop files according to other facets. For example, if the range of sources grows to cover many different types of services (e.g. beyond the realm of information services in the strict sense (see 2.3.1)), a file by function may be needed. Similarly, an international centre may find it convenient to establish a file by country. However, for most centres such files will not be necessary for information retrieval; they should be adopted only when warranted by the size or complexity of the inventory, or by the demands upon the centre.

Whatever the coding system used (e.g. classification scheme or post-co-ordinate indexing) the question of using a computer may be raised. To justify the cost of computerized files, it is necessary to have a sufficient number of sources (1,000 or more). Also, ready access to a computer is necessary in order to be able to answer questions promptly. It has been noted earlier that the post-co-ordinate approach can be very cumbersome when using a manual system. In any case, concerning computerized operations, one could consult Unesco or another organization in possession of operational programmes and experience in using them.

2.5 Staff training and development

To achieve satisfactory performance, the staff of a referral centre must demonstrate special skills: poise and quickness of mind, particularly when answering telephone queries; diplomacy, in order to clarify the questions of the clients who may not always know how to formulate their needs; psychological sensitivity; skill in establishing efficient and productive contacts; and finally, of course, the logic and perseverance in seeking the right answers which are required in all information retrieval.

Experienced information specialists are needed for this role. They must be well acquainted with the libraries, documentation centres and archives in their region, possess a solid background - typically a higher university degree, and have an appropriate aptitude for referral work. Fluency in the languages of the users, and in at least one language employed in international information transfer, is also essential.

A person who possesses these qualifications probably needs only on-the-job training and, in some cases, a period of internship in an existing referral centre in order to become a competent referral specialist. Experience shows that, excluding the most difficult questions, it does not take long for a person of this calibre to handle questions directly. Difficult queries are of course more quickly resolved by specialists experienced in this type of work. In any event, once the local resources have been exhausted, it is necessary to call upon the international network which is treated later on in this report.

The above considerations apply to a referral centre with a broad role. A specialized centre may well require staff with more specialized subject knowledge.

2.6 Work procedures in a referral centre

2.6.1 Selections among requests

It is necessary that the referral centre perform its functions adequately; all its functions, but only those functions. If one envisages a different kind of service (e.g. a question-answering service) a different name should be used so as not to create confusion about the functions of the centre.

Performing "all its functions" involves not only providing referral information but also verifying this information beforehand, in so far as possible, to ensure that the requester will find what he is seeking, or at least approach his goal. Furthermore, once the information is provided, the service should try to verify whether the client has been satisfied (see 2.6.5 Assessments by users).

All requests which do not fall into the pattern of service provided must be politely but firmly rejected or, if possible, directed rapidly elsewhere; the framework is restricted to referral of users to sources equipped to meet their needs for information and documentation within the domain of interest covered by the referral centre.

Misunderstanding about the functions of a centre (e.g. because of ambiguous publicity, see 2.7), may lead users to expect any kind of service. In fact, the true role of a referral centre is only to help its clients save time by directing them along their way.

2.6.2 Handling of requests

Clients contact referral centres by telephone, correspondence (either informally or using questionnaires) or telex. The telephone is the most widely used means, and also the most convenient, because it enables rapid dialogue during which the request can be stated, delimited and clarified. However, it can prove costly. When a telephone inquiry is received, it is first necessary to identify the caller, as well as his address and telephone number, to be able to call him back if the line is disconnected or if the answer cannot be given right away. Whether written or telephoned requests are concerned, one may use a request form similar to the following model designed to record only essential information required on the client and his query. The purpose of such a form is to make sure that nothing important has been omitted and to facilitate the preparation of statistical records.

The top part of the model request form identifies the client. Not only is his own name asked but also, if the question is of a professional nature, the name of his organization, its domain of activity, and the functions of the requester.

This makes it easier to understand why the question was asked as well as facilitating codification of the inquiry for statistical purposes. (See 2.6.4 for statistical coding by function of requester and type of organization).

If the client is contacting the referral centre for the first time, it is also interesting to find out how he learned of its existence: publicity, word of mouth and so on.

If the client has already used the service, most of this information should already be on file, on the previous request records or on the user record if the centre maintains a user file (discussed later, 2.6.5). The steps in identifying the requester can then be somewhat shortened.

One then proceeds to the most important step: specification of the question. The client formulates it in his own manner, and the referral specialist should maintain dialogue with him by telephone or correspondence, until the problem, its limits and its context are satisfactorily described. It is important that the basic approach to the problem be clear, i.e. whether commercial, technological, cultural or scientific information is required. Utilization of the space set aside on the model request form for coding of the query for statistical purposes will be discussed in section 2.6.4.

The referral service must also find out what search activities have already been conducted by the client to avoid referring him to sources already consulted without success; but such lack of success can sometimes be open to question - a requester may have searched poorly or a documentalist may have poorly scrutinized the collections of a particular source.

One meets communication difficulties of varying extent. An individual user may not always know exactly what he wants, while what he wants is not always what he needs; the real question may not be asked directly, or may be temporarily hidden among secondary matters. The role of the referral specialist is to arrive at a clear understanding of each problem; a poor referral, due to a misunderstanding between the client and the specialist, detracts not only from the result but also from the reputation of the centre.

The reverse side of the model request form summarizes details concerning the reply to the client (see 2.6.3) and his assessment of the service (see 2.6.5).

FORM FOR WRITTEN OR TELEPHONED REQUESTS

HEADING
Name & address of Referral Centre

Request for Referral Service Date:

(Reserved for use by Service)
No.:
Statistical codes:

PERSON SUBMITTING: _____ POSITION OR TITLE: _____

NAME OF ORGANIZATION OR COMPANY: _____

TYPE OF ACTIVITY AND SPECIALIZATION: _____

ADDRESS: _____

TELEPHONE: _____ TELEX/CABLES: _____

(OPTIONAL) First consultation? Yes: No: If yes: How did you find out about this service? _____

REQUEST: (Please be precise in stating your area of interest and the information desired. If the request is too general the reply also is likely to be so. Please use a separate form for each specific request; this will enable a more rapid reply)

_____ (Reserved for use by Service)
_____ Field: _____
_____
_____ Type of query: _____
_____

RESOURCES ALREADY CONSULTED: (Without this information sources already well known to you may be suggested)

Institutions: Documentation:

_____ _____
_____ _____

USER QUALIFICATIONS: (Certain information sources are not available to all users. Enquirers are referred to sources only when it is expected that they meet whatever qualifications may be required for access. Please indicate if you are participating in a Government contract, are affiliated with an official service, hold membership in a professional society or trade association, etc.

_____
_____
_____

TYPE OF REPLY WANTED: Letter: _____ Telephone: _____ Telex/Cable: _____

REVERSE SIDE OF FORM

Reserved for use by Service

Possible Sources	Verified (✓) by Service	Indicated (✓) to Client

Reply	Date	Assessment Questionnaire Received (Date)	Observations	Total Time Required for Reply
☐ letter ☐ telephone ☐ telex/cable		Yes No		

2.6.3 Handling of replies

Once all relevant information concerning the requester and the query or queries has been specified, the referral specialist can begin to search for one or more valid sources. He may locate them immediately in the case of straightforward queries. He may also have to contact the client again, after analysis and a preliminary investigation, if the elements in his possession prove insufficient.

The referral specialist is often (about 30 per cent of the cases according to SOS-DOC) in a position to be given an immediate answer to queries, without even checking his reference material. If, for example, the client wishes to know where to find a certain technical book or standard, it is usually possible to refer him to a library or to a technical book store where the book can probably be found or ordered, or to indicate the address of an agency with responsibility for standards. When the caller wishes to check an item in the book, which cannot normally be done at a book store, one will search for a documentation centre covering the field and try to verify, before replying to the client, that the centre actually has the book (this is done by consulting the union catalogue, if there is one, or calling the centre directly). If the book is not available, the search must continue elsewhere.

The very "raison d'être" of referral centres is that they strive to provide reliable information, by verifying in so far as possible, prior to giving the answer to a client, that the sources in question are in a position to satisfy him. In certain cases the referral specialist will be able to dispense with this verification. In others distance will rule out a telephone contact, and it will not be worthwhile to delay the reply through an exchange of correspondence (the telex, utilized at night at the lowest rate, can be very effective in such cases when available).

In addition (see 2.6.5) centres also try to find out whether the client received the information he sought, and if not, why. This can obviously lead to re-initiation of the search, perhaps on the basis of new insight. The art of referral consists of making the chain of searches and referrals as short as possible, and minimizing the delays in obtaining a reliable answer.

An experienced referral specialist can provide quick answers to most queries as he acquires experience and a growing knowledge of the information resources located in the vicinity and of the available tools (directories and other documentation on information sources, union catalogues, and the tools created by the referral service itself, such as source files, subject files, user files and files of questions already asked and answered). Experience shows that most queries are answered within 24 to 48 hours when referral tools as well as the information sources themselves are well developed at the national level.

However, a referral centre may also have to contend with difficult questions and with cases in which no appropriate local sources are available. If such queries are frequent, special staff training or experience may prove necessary to successfully handle replies.

When dealing with particularly difficult queries, one has to consult specialized reference works (encyclopediae, thesauri, etc.) and then directories to identify the sources most closely related to the subject at hand. The specialist may find it necessary to reorient his search by seeking documentation connected loosely with the question, advancing closer and closer to at least a provisional satisfactory solution. During this period the client should be informed of the investigation in progress, so that he is conscious of the effort being furnished; in the meantime he may have changed his mind and such contacts can thus help avoid waste of effort.

When there is no adequate locally-available source of information (this may often be true in developing countries) the referral response can still be found in directories. Verification will be done by the requester himself unless the mission of referral service requires it to go further in assisting the clients. If the referral tools available locally do not yield any useful solution, the specialist will then contact the "international network" starting with the service which seems the most apt to respond rapidly (see Part IV), the aim being to initiate contact with a chain of services which can channel the query to one or several sources of information, more or less distant but satisfactory.

It may also happen, although much more rarely, that no source available anywhere is in a position to provide the desired information. This outcome may indicate that the question is a completely new one or is unfounded. If the client is satisfied that everything possible has been done to find an answer (a description of the steps taken may be required before he is truly convinced), he will gracefully accept the fact that no information can be found regarding his problem. In some rare cases this may be the starting point for a scientific or technological research project, provided that the topic is important and that the necessary resources are available. An analogous decision may be taken in the commercial sphere following referral to the International Patent Institute in The Hague or the World Intellectual Property Organization in Geneva to learn whether a given question has been covered by one or more patents.

Finally, as we have seen in discussing selections and limits of action of a referral centre, there are always a certain number of queries which fall outside the centre's terms of reference. The working procedure of the centre will determine the course to take in such cases. Let us state only that information services exist above all for the users, and that to systematically turn away referral requests would be a retreat before responsibilities, even if such responsibilities apply especially to other subject fields.

A referral centre will thus generally possess not only the directories strictly necessary to cover its chosen scope, but also some directories of a more general nature. In the case of a request for the address of a manufacturer or seller, for example, one could provide the pertinent addresses (from "Kompass" registers (see Appendix III, C.6), yearbooks of chambers of commerce or of branches of industry, etc.) or refer the requester to a suitable trade association or other competent source.

To complete this section we provide below several examples of queries and replies: (3) (8)

Example 1 (NRC, Washington): Sources of information on termite attractants.
Requester: engineer, type of organization: commercial.
Reply: Forest Products Laboratory, United States Department of Agriculture.

Example 2 (SOS-DOC, Paris): Sources of information relevant to compilation of a history of railroads.
Requester: advertiser.
Replies: Forney Library, Paris.
International Union of Railways, Paris.

Archives holdings would also have been appropriate sources if the requester had been involved in historical research.

Example 3 (NRC, Washington): Sources of information on acupuncture.
Requester: writer.
Replies:
1. Société Internationale d'Acuponcture, Paris, France.
2. New York Academy of Medicine.
3. China Institute in America.
4. Science and Technology Division, Library of Congress.
5. Index Medicus.
6. Abstracts of World Medicine.

The last two sources given are documents, which are also relevant to the query and to the needs of the requester.

2.6.4 Coding and statistical treatment

In order to derive statistical information from the file of queries handled, it is necessary to classify the queries. To avoid lengthy descriptions, many referral centres establish codes for a number of typical characteristics encountered in practice.

For example, codes for the position of the client might be: MGR (managing director), DOC (information specialist), STU (student), RENG (research engineer), PENG (production engineer), SALES (sales/marketing specialist), MD (medical doctor), JOUR (journalist), PROF (professor/teacher), TECH (technician), etc. Similarly, the following codes could be used to identify types of organization: ADM (administrative body), ASN (association), CF (consulting firm), RC (research centre), COM (commercial), IND (individual) and so on (see section D of source questionnaire, page 10 for a more complete list).

Codes describing the type of query could include the following: ADR (addresses) to identify general requests for addresses of information sources, MFR (addresses of manufacturers/suppliers), LAB (when the client is seeking the address of a laboratory), DAT (when specific data are sought), STAT (statistics), STAN (standards), DOC (published documentation on a specific subject), REC (historical/administrative records), TA (request for sources of technical assistance), etc.

To identify the subject specialization of each requesting organization or query, it is advisable to use the same classification scheme or list of terms chosen for ordering of the information sources (see 2.3.3), unless there are good reasons for not doing so. It may however be appropriate to establish a smaller set of subject codes corresponding to the major headings of the scheme (e.g. BIO for biological sciences or GEO for earth sciences); the size of the set will depend on the detail of the statistical information required.

It is generally not convenient to expect the user to participate in the coding procedure. The codes describing the client and his query can be noted by the referral specialist on the request record (see model form, 2.6.2); this can be done after the conversation with the client has been completed in the case of a telephoned request. Alternatively, pre-printed checklists of codes can be employed to register the information pertaining to the queries.

At periodic intervals - perhaps once a week or once a month, with quarterly and yearly cumulative totals - the number of queries pertaining to every recognizable category, whether coded or not, will be counted; statistics concerning the answers given and assessments made by the clients (see 2.6.5) will also be tabulated. In this way, periodic reports can be prepared (e.g. references 3, 9 and 10), documenting the activities of the centre while helping it to achieve a better understanding of its clientele and the demands on the total information system. More importantly, those responsible for the total system may find that such reports contain material useful in formulating information policy.

2.6.5 Assessment by users

When a query falls within the established framework and referral is provided, it is useful to try to determine the success of the referral. This is done by most referral centres by sending to the clients a courteous letter and assessment questionnaire, usually about two weeks after the answer has been given.

A suggested model assessment questionnaire and a covering letter (based on those of SOS-DOC) are presented on the following pages.

If the service has sufficient resources, the letter and the questionnaire will be accompanied by a stamped envelope bearing the address of the service. One must be prepared for a certain lack of enthusiasm on the part of the users for the assessment procedure, and a significant number of these requests may go unanswered.

Random telephone contacts or personal interviews with the users could be undertaken in this case to confirm trends identified by the analysis of questionnaire returns.

Spontaneous demand for referral services will rarely be sufficient to enable full characterization of user needs. User assessments thus constitute one aspect of the feedback from users and from sources (see 2.8) which makes it possible to measure referral performance and to correct shortcomings of the sources as well as those of the centre. It is advisable to wait until correlated and reliable statistical information is available before passing on the data to the decision-makers. It is likely, however, that information collected over a period of one or two years by an impartial referral centre on the basis of repeated criticisms and suggestions of the clients will indicate necessary steps to improve the overall information system.

Case studies based on individual assessments may also be useful for publicity purposes (e.g. in a newsletter or bulletin, section 2.7).

MODEL OF LETTER TO ACCOMPANY ASSESSMENT QUESTIONNAIRE

LETTERHEAD
(Address, telephone, etc.)

Date:

Reference: Your telephone request of _____
Your letter of _____ Your ref. _____
Your telex/cable of _____

Subject: Assessment questionnaire

Dear Sir/Madam:

We recently had the opportunity to reply to your above-mentioned query. We hope that our answer made it easier for you to obtain the information you needed.

By giving us an idea of the value to you of our services you will help us increase our effectiveness. This is why we are taking the liberty of enclosing a brief assessment questionnaire which we ask you to fill out.

We thank you for your co-operation. Your assessment and that of the other clients of our centre will help us in gradually improving the quality of the services we offer.

Very truly yours,

(signature)
Name and title of the
Centre Chief

ASSESSMENT QUESTIONNAIRE

(to be prefilled by the service

Statement of the question: Query No. _____

Did you receive a satisfactory reply?

YES NO IN PART (circle the appropriate answer)

If you circled NO or IN PART, please indicate why you were not, or not fully satisfied.

Comments or suggestions:

Our suggestion was that you contact the sources listed below. If your contacts with these sources are sufficiently advanced to justify an opinion please indicate your assessment on the grid below.

	WAS THE CONTACT USEFUL?			
	YES	IN PART	NO	NOT CONTACTED
(to be prefilled by the service) Source No.1				
Source No.2				
Source No.3				
Source No.4				
Source No.5				

If you obtained the desired information from sources other than those listed above, could you give us their names and addresses so that we may have other clients benefit from their services?

Date: _____

_____

Signature of person completing the questionnaire

As a final related point, a user file facilitates follow-up on clients and preparation of statistics. It also makes it easier to retrieve basic information regarding regular clients and eliminates the need to ask for the same information each time they call the centre. In the following model user record, all contacts with clients belonging to a single organization are entered on a single record (other methods may be used).

USER RECORD

ORGANIZATION:			Type:	
Address:			Specialization:	
Telephone:		Telex/cable		
Name	Telephone Extension	Department	Function	Query Reference Numbers

2.7 Publicity and publications

As soon as a referral centre becomes operational, it must make its existence known to potential users in all sectors of activity within its chosen scope. A great variety of methods are available: announcements in specialized publications and in the general press, mailing of brochures explaining what the centre can do (and what it cannot do), demonstrations at commercial and public expositions, lectures on the activities and role of the centre, messages through the media and so on.

Poorly drafted publicity can lead to unfortunate consequences: such a notice, combined with the name chosen for the service (SOS!) caused an avalanche of extraneous requests to descend on the French referral service when it was initiated in 1974. We have included below two publicity folders distributed by existing referral centres. It is worth noting the care with which the limits of the services available are defined.

- **a free service**
no charges or subscription fees although the services rendered by the sources of information recommended are, in certain cases, charged for.

- **a practical service**
it permits you to learn of organizations responsible for collecting and disseminating scientific and technological information.

- **a fast service**
for most questions referrals can be given within 24 hours.

SOS DOC

Founded and financed by the: NSTIO

National Scientific and Technical Information Office, an interministerial body responsible for defining and implementing a national scientific and technological information policy.

Managed by: NTRA

the National Technical Research Association

Referral service to sources of scientific and technological information and documentation

a service which is public, free, practical and fast.

SOS DOC refers requesters of information to the various services or specialized organizations which can provide the answers, help or technical assistance requested.

When you are looking for:

- information on an industrial process
- a study on a specific type of technology
- advice for improving a manufacturing process
- technical assistance in studying a new product
- identification of documents (books, journal articles and so on) concerning some technical field

SOS DOC will refer you to agencies and organizations such as:

- technical industrial centres
- documentation centres
- trade associations
- specialized libraries

which possess scientific and technological information and are willing to provide it.

Several suggestions:

- indicate clearly your address and telephone
- formulate your questions as precisely as possible
- inform SOS DOC of the steps already affected (in your search)
- make clear to the information sources recommended that SOS DOC directed you to them

How to get in touch with SOS DOC?

SOS DOC

- by telephone: 281-03-44 Monday through Friday, from 8.30 a.m. to 6 p.m.
- by correspondence: SOS DOC 19 rue Blanche 75009 Paris
- by telex: Didemins Paris 270-257 (your message must begin with: attention SOS DOC)

translation from original french version

HOW TO REGISTER SPECIALIZED CAPABILITIES

The National Referral Center invites contributions by organizations or individuals who have, or are aware of, specialized information capabilities in the physical, biological, social, or engineering sciences.

A data form designed by the center for its continuing survey is available on request, but its use is not mandatory. Descriptive information may be submitted in any terms convenient to the contributor but should contain as many details as possible concerning the following:

- SUBJECT COVERAGE AND SPECIALIZATION. Areas of interest should be reported in depth to enable the center in its referrals to match the specificity of an inquiry with the resources most appropriate to it.

- INFORMATION FUNCTIONS AND SERVICES. These include responses to technical questions; consulting, advisory, identification, and testing services; literature searches; preparation of bibliographies; and other assistance an organization or individual is willing to provide in response to requests for information.

- SERVICE CONDITIONS AND RESTRICTIONS. Any limitations that may apply to the accessibility of a resource and its services are of vital importance to the center in carrying out its policy of referring an inquirer only to resources willing to serve him.

- AUTOMATION. Because of a growing number of inquiries about computer-based collections and services, the center is now regularly eliciting information on the automation capabilities of resources, including access to data bases (whether on-line or through computer tapes) and the availability of computer programs.

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NATIONAL REFERRAL CENTER

VISIT, CALL, OR WRITE

The National Referral Center is located on the fifth floor of the Library of Congress Annex, Second Street and Independence Avenue SE., Washington, D.C. Visits by those interested in its functions or services are welcome on weekdays between 8:30 a.m. and 4:30 p.m.

Telephone inquiries should be directed as follows:

(Area code 202) 426-5687 for general inquiries

426-5670 for referral service

426-5680 for registration of information resources

Correspondence should be addressed to:

Library of Congress
Science and Technology Division
National Referral Center
10 First St. SE.
Washington, D.C. 20540

SCIENCE AND TECHNOLOGY DIVISION

LIBRARY OF CONGRESS

THE NATIONAL REFERRAL CENTER assists those who have questions in science and technology by referring them to organizations that can answer those questions. Operating in the Science and Technology Division, Library of Congress, the center provides a single place to which anyone may turn for advice on where to obtain information on specific topics in science and technology.

The data base for this free service is a subject-indexed inventory, continuously updated by a professional staff of analysts, that contains descriptions of some 11,500 organizations (called "information resources" by the center) having specialized knowledge in the broad range of science and technology. Included in the descriptions are detailed data on each resource's areas of interest and the types of information services it provides.

The center does not itself attempt to furnish technical answers to inquiries—or even references to literature that might contain such answers (requests for bibliographic assistance should be directed to the Science and Technology Division). Instead, functioning as an intermediary, it directs those who have a question concerning a particular subject to organizations or individuals with specialized knowledge of that subject.

SCOPE

The center is concerned with all fields of science and technology: the physical, biological, social, and engineering sciences, and the many technical areas relating to them. Similarly, it is concerned with all kinds of information resources, wherever they exist: in government, in industry, and in the academic and professional world.

The concept of "information resources" that the center has adopted is an extremely broad one. It extends to any organization, institution, group, or individual with specialized knowledge in a given field and a willingness to share this knowledge with others. Included are professional societies, university research bureaus and institutes, federal and state agencies and units within them, industrial laboratories, museum specimen collections, testing stations, and individual experts, as well as more traditional sources of information, such as technical libraries, information and document centers, and abstracting and indexing services. The center's criterion for registering a resource is not size but the ability and willingness to supply information to others within reasonable limitations.

SERVICES

In its efforts to bring together those who ask and those who know, the center handles inquiries covering the widest possible spectrum of science and technology. Illustrative of the kinds of questions received are the following:

- WHO can tell me about on-board production of methane for vehicle propulsion?
- WHAT organization can advise me about procedures for disc electrophoresis of protein in striated skeletal muscle?
- WHERE can I find data on the flash point of textiles and other consumer products?
- HOW can I locate information on the use of satellites as collectors of population and natural resources data?

In answer to such inquiries, the National Referral Center provides names, addresses, telephone numbers, and brief descriptions of appropriate information resources. In each case the response is individually tailored to the inquirer's special interest.

No special forms are required to obtain referral service, but the center can make its replies more effective if the inquirer presents precise statements of:

- THE INFORMATION DESIRED. A request submitted in clear, precise terms will make it possible to select the most specifically pertinent resources. Referral service is speeded up if each request is limited to a single topic.
- INFORMATION RESOURCES ALREADY QUERIED. To avoid being referred to resources already known to him the inquirer should tell the center what resources he is already familiar with.
- HIS SPECIAL QUALIFICATIONS. Participation in a government contract, affiliation with a recognized project, or membership in a professional society sometimes entitles an inquirer to use resources otherwise not open to him Any such qualifications should be indicated.

PUBLICATIONS

Broad selections from the data base are occasionally compiled by the center and published by the Library of Congress under the general title *A Directory of Information Resources in the United States.* Subtitled as listed below, these directories may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Except as otherwise noted, they were produced with support from the National Science Foundation.

Federal Government, With a Supplement of Government-Sponsored Information Analysis Centers. Rev. ed. (1974) 416 p. $4.25 (GPO catalog no. LC 1.31:D62/4-974)

Social Sciences. Rev. ed. (1973) 700 p. $6.90 (GPO catalog no. LC 1.31:D62/2-973)

Biological Sciences (1972) 577 p. $5.00 (GPO catalog no. LC 1.31:D62/7)

Physical Sciences, Engineering (1971) 803 p. $7.40 (GPO catalog no. LC 1.31:D62/6)

General Toxicology (1969) 293 p. $3.30 (GPO catalog no. LC 1.31:D62/5) Produced with support from the Toxicology Information Program, National Library of Medicine.

Water (1966) 248 p. $2.95 (GPO catalog no. LC 1.31:D62/3)

Also compiled by the center is a directory similar to those in the above series entitled *Directory of Federally Supported Information Analysis Centers, 3d ed.* (1974) which is sold through the National Technical Information Service, Springfield, Va. 22151. In addition, the center occasionally issues informal lists of organizations having specialized knowledge in given subject areas (e.g. hazardous materials, population, environmental education, etc.). Called "selected lists," these are available free from the center.

GPO 881-503

A few referral centres also make use of billboards and publicize widely through announcements and advertisements. One public information service (in Denmark) goes so far as to directly solicit queries (not only for referral but also for documentary searches) within commercial enterprises; its staff members systematically interview potential users on their problems and when possible return to provide them with the elements of a solution.

Newsletters are published by several referral centres in order to provide information about the centre and its environment (users and sources), and to illustrate replies to queries likely to interest a large audience and attract potential users through written proof of referral capability.

The most essential publicity will result from the good reputation progressively built up by a referral centre that has efficiently provided information to a substantial number of users. However, it may well prove difficult to convince the clientele of the usefulness of a centre in the initial stages, and a vigorous, carefully-targeted promotional programme is therefore recommended. The experience in Canada may be of interest to newly-developing centres in this context.(9)

The publications of a referral centre can include general and specialized directories based on inventories and their updates, which often serve a wide range of users.

Finally, there will also be a periodic report of activities, quarterly or annual, with statistics on usage of the centre, other data available, and relevant commentary.

2.8 Organization of a referral centre and network

The functions of referral centres and the details of how they carry out their work have been reviewed. Next is briefly considered the overall problem of organizing a centre and inserting it into a network of co-operating information sources.

The decision to establish a referral centre with a given mission or subject scope will generally be based on criteria similar to those applied to other information policy and infrastructure development decisions. Once such a decision has been taken, the first steps in the organization process will be to identify the target audience of the centre, in consideration of overall development needs, and then to decide on the range of services to be offered in view of the specialization and level of the target users, the existing infrastructure of sources and the available budgetary resources. Whether the centre is to depend on an existing organization or to be autonomous, the necessary supporting environment and operating rules should be prepared in advance.

Appendix I presents diagrammatically the principal steps in organizing a referral centre.

Since the primary purpose of a referral centre is to make possible more effective use of existing information resources, it would be logical for the information sources themselves, or their sponsors, to assume the operating costs of the centre. However, these bodies are numerous and diverse, and it is difficult to convince them of the promotional advantages of a centre, or of the need to finance it. Sponsorship by the sources might also in certain cases compromise the objectivity of the centre.

This burden is thus generally assumed by the clients as a group, and in practice this usually means that the responsibility is borne by the national government or an organization concerned with improving use of information sources in the region.

If the centre does not provide its services free of charge, it will risk having only a few clients, at least until its effectiveness has been proven; the budget of a centre serving a country or region may therefore constitute a significant burden for the organizer. Concerning operational responsibility, it has been seen (section 2.1) that a department or agency of the government (e.g. an operational information centre) or an association (of librarians and documentalists for example) may be made responsible for the creation and development of a referral centre.

Although the initial organization may have to take place before all the relevant information sources can be identified and contacted, the success of the centre will depend on establishing a harmonious complementary relationship with the network of sources. Continuing promotional effort will therefore be required to convince the sources that the centre performs a supportive rather than a competitive function, and to bring them to understand the obligations they accept in being included in the referral files. In turn, the centre will be able to improve its performance through continuous feedback from the sources concerning the referrals addressed to them. Since each information source has its own clientele and objectives, these goals can only be obtained through mutual understanding.

It is difficult to recommend a fixed methodology for creating an active and responsive community of sources, because of the diversity of possible strategies for organizing a successful referral network. Instead, several approaches utilized by existing centres are given below:

personal and informal contact between referral centre staff and key people in the source community staff is of utmost importance. This can be accomplished through telephone contacts and occasional discussions with senior management of the individual sources;

a referral centre can consider organizing meetings or seminars bringing together the source community (and perhaps the user community) to discuss problems of common interest;

sources with wide competence in a specialized area (e.g. a national statistical institute or standardization organization) can be given responsibility for handling all referral requests in that area;

a regular bulletin aimed at sources can be published (perhaps in conjunction with the newsletter for wider distribution mentioned in section 2.7);

a referral centre can issue "certificates of participation" to its sources.

PART III - POSSIBLE USES OF INVENTORIES AND ASSESSMENTS IN IMPROVING RESOURCES

One of the most interesting by-products of the operation of a referral centre is the clients' feedback concerning the sources to which they have been referred. Although not indispensable, many referral services strive to obtain user assessments (2.6.5) and to make use of them to best advantage. This assessment information, and that obtained from compilation of inventories (2.3) and from feedback from sources (2.8), should however be used only with circumspection and with well-defined objectives in view, i.e. to help improve the referral centre, the overall information system and the services of individual sources.

First of all, observations and comments of users must be corroborated and placed in their proper context, particularly if they represent criticisms. When several clients submit identical complaints regarding the poor service given by a source, some need for action is probably indicated, i.e. elimination from the centre's file of recommended sources if no improvement is noted. Such a problem may ultimately require corrective action, particularly if the source occupies a unique position (e.g. when it is the only source of its type in the region served). In other cases user assessments may indicate the total lack of a necessary information source.

It should be emphasized that a referral centre does not normally intervene directly in such matters excepting perhaps through informal discussions to clarify a minor misunderstanding. The centre should consecrate itself to its principal task - responsive and efficient referral service to users. On the question of evaluation of sources its role is to concisely analyse the information available for transmission to the decision-making system, i.e. the organization responsible for information policy which must decide on possible action to be taken. The information resulting from assessments will be presented in an appropriate manner in the reports of activity of the referral centre.

There is also the question of source duplication: collections that are identical or very similar imply extra costs and under-utilization. The source files of a referral centre will often indicate such overlap and union catalogues, where they exist, will provide confirmation. Although over-abundance is less harmful than gaps in service, a reduction of duplication may liberate resources to eliminate the more obvious gaps in collections. According to the circumstances a referral centre may be able to provide information enabling, as an element of information policy, a solution for better sharing of tasks and of acquisitions.

In proposing improvements in the organization of information services, it is necessary to proceed one step at a time, keeping in mind possible medium-term and long-term solutions. Not only should the information system within which the centre operates be taken into account, but also the resources available within neighbouring systems, covered briefly in Part IV on regional and international co-operation.

PART IV - INTERNATIONAL CO-OPERATION AMONG REFERRAL CENTRES AND NETWORKS

Clients usually need immediate answers to their questions. Beyond a certain waiting period, interest wanes. It is equally certain that no information system can supply all information immediately, particularly when it is of foreign origin. It is therefore necessary to establish a rational system of interconnection among referral centres to serve the widest possible range of needs at the least expense.

"Least expense" is important because acquiring directories of sources from other countries and organizations, and exchanging requests which cannot be answered locally, is far less costly than installing new sources designed to respond to local needs. This does not mean however that one should abstain from creating and developing endogenous information sources. It is also costly to possess insufficient information locally and to request it excessively abroad. These considerations pose problems of policy.

Statistics from national referral services consulted for the present guidelines show that requests from foreign countries represent a small percentage of the total (approximately 1 per cent) and that referrals to foreign sources constitute an equally small proportion of the total. This undoubtedly reflects the fact that the survey has been conducted primarily in industrialized countries, relatively rich in local

information resources. The proportion of foreign contacts would certainly be larger in developing countries, and notably in the poorer countries, where up-to-date information is often not sufficiently available in the principal sectors of activity, a result of limited financial and human resources and of the difficult problems of foreign exchange, authorizations and shipments.

When a query is not answerable within the information network covered by the files of the centre, the referral specialist can utilize the directories of other centres and networks to provide one or several addresses, with or without verification. He can also contact by letter, telex or telephone (depending on available resources) an "external" colleague likely to provide a satisfactory reply. In cases where fees are normally charged, such co-operation among referral centres may be arranged on a reciprocal exchange basis.

It can be seen that the above procedure is relatively simple, inexpensive and likely to lead to significant enhancement of the communication process. The procedure is shown schematically in Figure 2 as a generalization of Figure 1 (page 4) from the national level to the international environment. This diagram depicts the world's users of information, the referral centres of the world taken as a group, and finally the sources of information, including specialized international information systems. Each information transfer sequence, whether at the national or international level, aims at an appropriate exchange of information between the user and at least one source. In the most general case this process will include five phases, already amply described:

(1) request for referral (2.6.2);

(2) search for a source; consultation of referral tools and perhaps with another referral centre; verification of the relevance of the source(s) located (2.6.3);

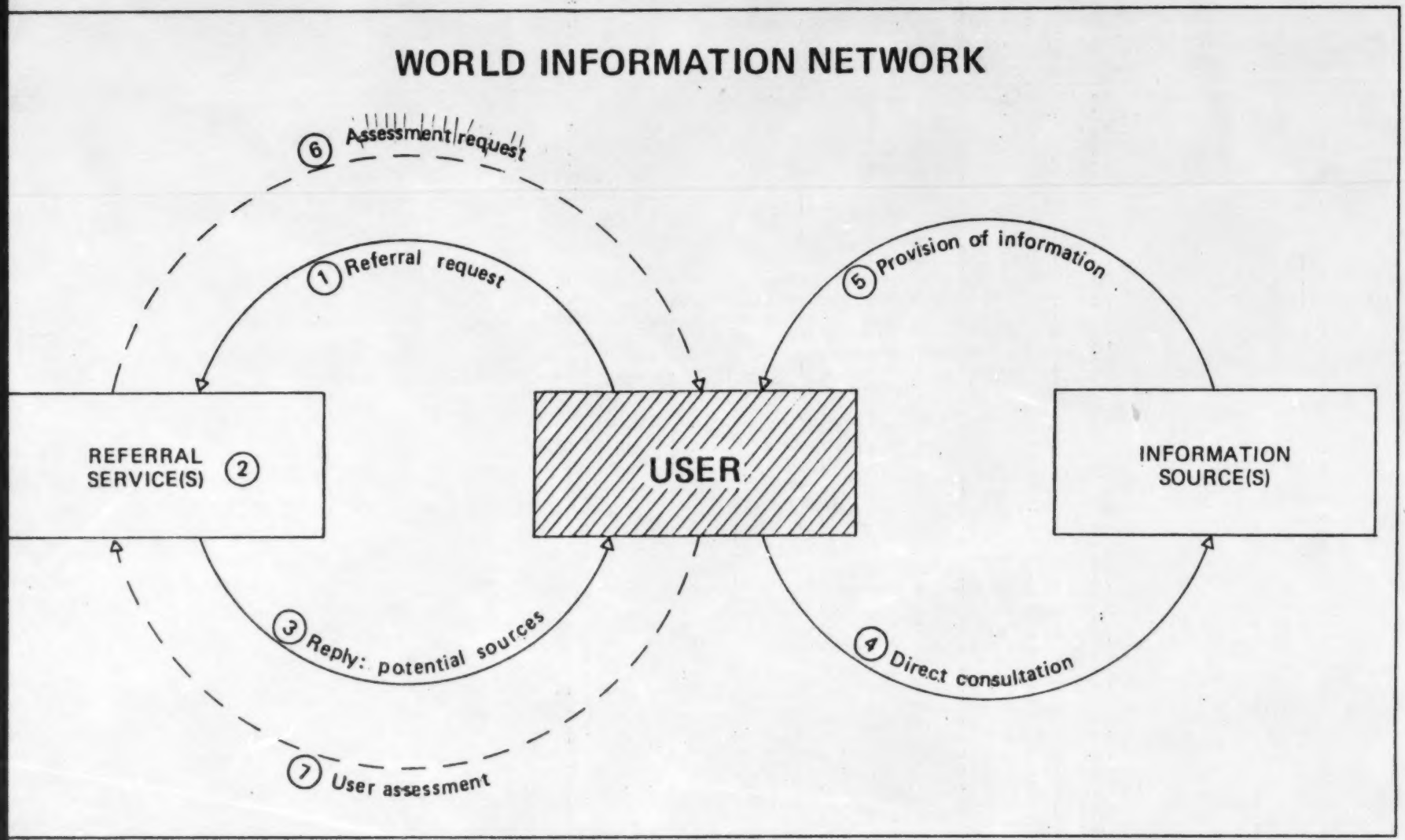
(3) referral reply to the requester;

(4) direct consultation of the requester with the source(s) indicated;

(5) provision of the information to the requester.

There may also be an additional phase: that of assessment which has been discussed previously (2.6.5).

re 2: ROLE OF REFERRAL WITHIN THE WORLD INFORMATION NETWORK



As a result of working contacts with foreign information sources and referral services, possibilities for deeper and more fruitful international collaboration often become apparent. Under the double pressure of clients' requirements and costs, it invariably proves necessary to allocate tasks, resources and efforts. Such co-operation is foreseen in the UNISIST concept of a loose voluntary network involving all the world's information systems and services(1) (11) - a concept endorsed by the United Nations system and by its Member States. In certain fields of information, international co-operation is leading to new information systems which group the sources themselves to provide international documentary services (e.g. AGRIS and INIS in the fields of agriculture and nuclear energy respectively);(11) but this costly solution is at present considered feasible only in a limited number of priority fields. A key aspect of the world information network is therefore increasingly seen, as co-operation in information referral in order to link users and sources in fields where documentary services with international coverage do not exist, and in order to interconnect existing international information systems.

It would not be desirable for every country to organize an information unit dealing with methods for controlling the presence of mercury in food, for example, when it is known that this problem is primarily found in countries bordering an inland sea, and that these countries have pooled their efforts to create a small number of information centres which are well equipped to meet the existing requirements. A similar case is that of arid zones. For more common topics, information may be more spread out, but specialized problems can in general only be treated by a limited number of specialized centres.

International co-operation among referral centres has already been firmly established on environmental questions (e.g. the problems of mercury pollution and arid zones cited above) through INFOTERRA (formerly the International Referral System,(11) (12), operational since 1977 under the sponsorship of the United Nations Environmental Programme. Through INFOTERRA, 73 specialized national and regional referral centres (focal points) have pooled their source information to produce a directory and a computerized file covering more than 7,000 environmental information sources. International referral requests can be handled either by one of the participating focal points or by the referral centre at UNEP headquarters in Nairobi.

Many other examples of international programmes in the field of referral can be cited (including several sponsored by specialized organizations of the United Nations).(11) Let us mention here only the referral services within the UNIDO (United Nations Industrial Development Organization) industrial information system and its national correspondents;(10) CARIS (Current Agricultural Research Information System) sponsored by FAO (Food and Agriculture Organization of the United Nations), a co-operative project referring users to sources conducting ongoing research of interest to developing countries; and the proposed DEVSIS(13) information system on the development sciences, which envisages an international referral file as well as international documentary services.

In the domain of numerical data for science and technology, national and regional referral centres are co-operating within the long-term programme of CODATA (Committee on Data for Science and Technology of the International Council of Scientific Unions). The World Data Referral Centre (WDRC) was established by CODATA in 1977 to provide referral tools and advice to interested services, and to facilitate handling of referral requests at the international level when required.(14)

A vital aspect of each of these programmes for international co-operation is reliance on a network of nationally-based referral activities. Addresses of several international referral programmes are provided in Appendix II, and several of the resulting international referral tools in Appendix III.

How can this type of co-operation be extended to all countries and all fields? A certain amount of international co-ordination is necessary, but this does not necessarily imply the establishment of new international organizations. In order to make better use of what already exists, each country, each homogeneous region and each important specialized sector can create its own referral centre or network of centres, associated with programmes for international co-operation where they already exist.

Efforts should be made to establish an increasing number of these centres and networks in the developing countries. Regional referral centres may be especially useful in areas where national information systems are just developing, and relevant information sources are diffused throughout the region. Formal support from the national authorities in the region can facilitate the creation and development of such centres. Similarly, regional and international referral programmes of special interest to the developing countries (for example commodity-oriented programmes) should increasingly strengthen links with national referral centres in these countries. It should be emphasized, however, that any regional or international referral system requires an adequate communications infrastructure, at both the national and international levels, in order to achieve significant impact in information transfer.

The directories developed by referral centres and networks should be exchanged as they appear, in order to inform referral specialists about available external resources. To accomplish this it will suffice to establish regular co-operation among the centres, beginning with exchange of their respective addresses. From that point one can produce simple directories of referral services (e.g. ref. B.8, Appendix III, covering French-language sources and referral services), which could ultimately enable information referral to any locality in any field.

It may also be helpful to organize, for example on a regional basis, meetings of referral specialists to permit sharing of experience on common problems and plans. Another desirable form of co-operation, particularly upon the initiation of a new referral centre, is the organization of short periods of training for its specialists at established centres. In the longer term, one might envisage more systematic and sophisticated exchange: on the basis of a common standard for inventories and compatible information-handling procedures, magnetic tapes instead of printed directories could be exchanged, or computer networks could be utilized for exchange of queries.

Efforts towards a voluntary world referral network thus serve to reduce, little by little, the inequalities in service available to users of information throughout the world.

BIBLIOGRAPHY USED FOR THE PRESENT STUDY

1. UNISIST, Study Report on the Feasibility of a World Science Information System. Paris, Unesco, 1971, 161 p.

2. UNISIST, Guidelines on the Conduct of a National Inventory of Scientific Technological Information and Documentation Facilities (based on a study by L. Vilentchuk), Paris, Unesco, 1975, 50 p. bibliogr. (SC/75/WS/28).

3. SOS-DOC (Service d'orientation vers les sources d'information et de documentation scientifiques et techniques). Contrat BNIST/ANRT. September 1974 - April 1976. Rapport. Paris, SOS-DOC, 1976, 6 p.

4. Burk, C.F., Jr. "The National Data Referral System for Canadian Geoscience", Geoscience Information Society Proceedings, vol.8, 1978, pp.31-41.

5. McFarland, M.W. "The National Referral Center", Special Libraries, vol.66, No.3, March 1975, pp.126-132.

6a. Organy nauchno-technicheskoj informatsii SSSR (Scientific and Technical Information Organs of the USSR). Moscow, State Committee for Science and Technology, 1976.

b. Mihajlov, A.I. et al. Osnovy Informatiki (Fundamentals of Information Science). Moscow, Nauka, 1968.

7. BSO/Broad System of Ordering, Schedule and Index, Third Revision. The Hague, International Federation for Documentation, and Paris, Unesco, 1978, 184 p. FID Publication 564.

8. National Referral Center for Science and Technology. Representative Referral Requests. Washington, Library of Congress, no date, 8 p., multigraphed.

9. The Final Report of the Network Development and Implementation Group. Ottawa, National Research Council of Canada, 1977, 81 p. + appendices. NRC No. 16180.

10. Marx, B. Correspondant du Service de Renseignements Industriels de l'ONUDI. Rapport d'Activité (French correspondent to the UNIDO Industrial Information Service. Activity report. Paris, ANRT, last report February 1974 - July 1976, multigraphed.

11. Directory of United Nations Information Systems and Services. Geneva, Inter-Organization Board for Information Systems and Related Activities (IOB), 1978, 267 p.

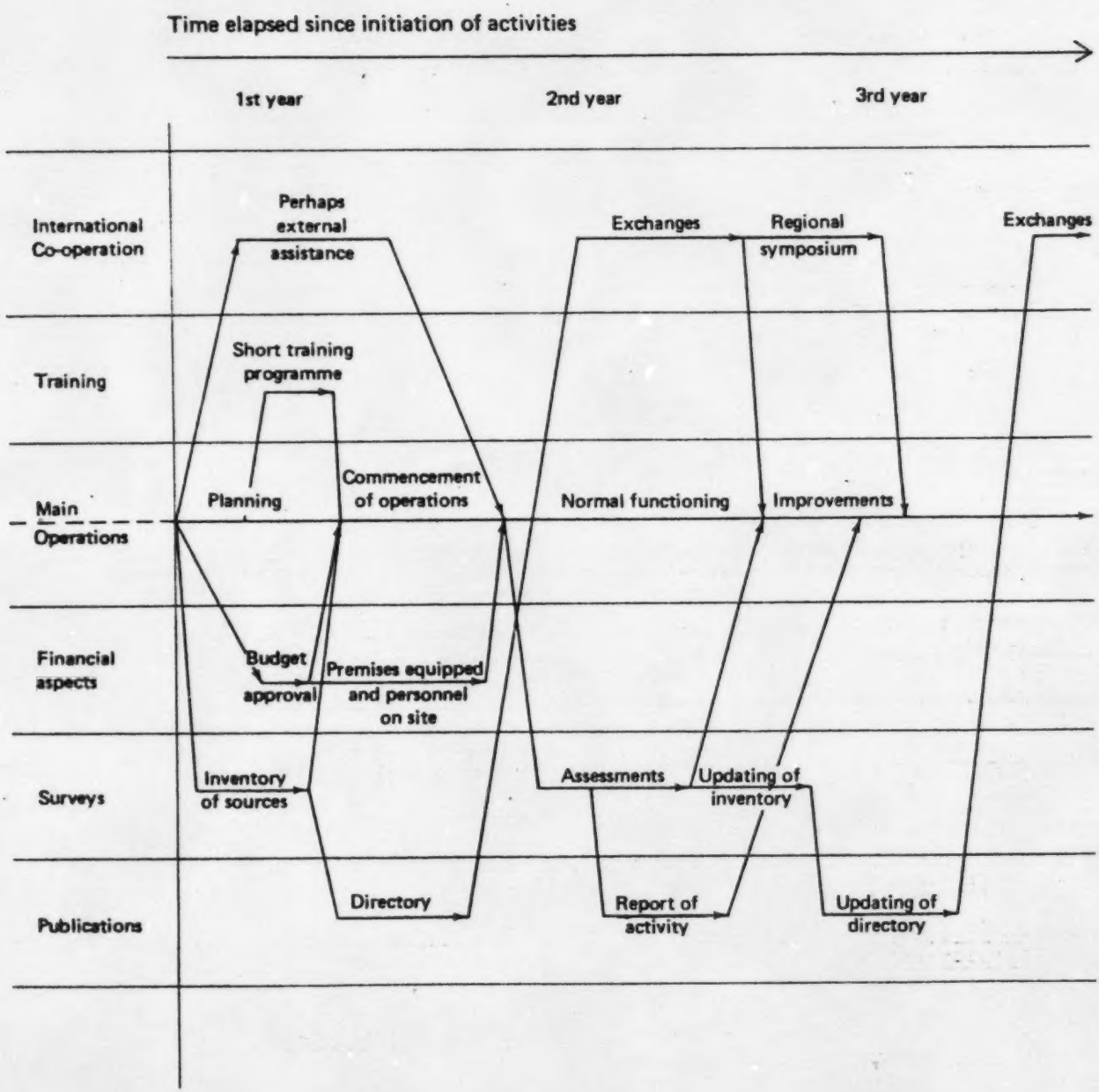
12. International Referral System for Sources of Environmental Information (IRS) Operations Manual (revised version). Nairobi, UNEP, 1977.

13. DEVSIS, Preliminary Design of an International Information System for the Development Sciences. Ottawa, International Development Research Centre (IDRC), 1976, 247 p.

14. CODATA/ADD Task Group. Feasibility Study of a World Data Referral Centre. Paris, CODATA, 1975, 39 p. Special Report No.2.

APPENDIX I

Scheme of principal steps in establishment and development of a referral centre



APPENDIX II

Addresses of several international referral centres

A. Information systems and services of the United Nations family

N.B. Many of the United Nations agencies provide or sponsor referral services: see reference A.1 (Appendix III) for further details and additional examples.

1. INFOTERRA (formerly International Referral System)
United Nations Environment Programme (UNEP)
P.O. Box 30552
Nairobi, Kenya

2. Industrial Information System
United Nations Industrial Development Organization (UNIDO)
P.O. Box 707
1011 Vienna, Austria

3a. AGRIS (International Information System for the Agricultural Sciences and Technology)
Scope: agricultural documentation (including referral services).

b. CARIS (Current Agricultural Research Information System)
Scope: information on agricultural research in progress in developing countries.

Library and Documentation Systems' Division
Food and Agriculture Organization of the United Nations (FAO)
Via delle Terme di Caracalla
00100 Rome, Italy

B. Other international and regional referral centres

1. World Data Referral Centre (WDRC)
Scope: data in science and technology
CODATA Secretariat
51 boulevard de Montmorency
75016 Paris, France

2. Development Reference Service
Scope: economic and social development
Society for International Development
49 rue de la Glacière
75013 Paris, France

3. EUSIREF (European Scientific Information References)
Scope: machine-readable data bases of member centres
European Association of Scientific Information Dissemination Centres (EUSIDIC)
Executive Secretary: Cyril Cleverdon
Rose Cottage, Moulsoe, Newport Pagnell
Buckinghamshire, England, U.K.

4. International Referral Centre for Information Handling Equipment (IRCIHE)
   Trg. Marsala Tita
   P.O.B. 327
   41001 Zagreb, Yugoslavia

N.B. The above examples are only indicative; many international and regional organizations provide referral services, often as an aspect of wider information activities (e.g. see references A.2 and A.3, Appendix III, for examples).

C. National referral centres

These are too numerous to list in the present appendix. Many such centres, both specialized and of wide subject scope, can be located through directories such as those in Appendix III. National libraries and documentation centres very often provide (or are establishing) referral services; they should be approached when no specific referral centre is known to exist.

APPENDIX III

Several international directories of sources

A. General

1. Directory of United Nations Information Systems and Services. Geneva, Inter-Organization Board for Information Systems and Related Activities (IOB), 1978, 267 p. (also includes addresses of national and regional participating centres).

2. Handbook on Information, Computer and Communications Activities of Major International Organizations. Paris, Organization for Economic Co-operation and Development (OECD). Directorate for Science, Technology and Industry, to be published 1979.

3. World Guide to Technical Information and Documentation Services. 2nd ed. Paris, Unesco, 1975, 515 p. (N.B. contains lists of international, regional and national directories as well as describing institutions)

4. Encyclopedia of Information Systems and Services. 3rd ed. Edit. A.T. Kruzas. Detroit, Gale Research Company, 1978, 1,030 p. ISBN 0-8103-0940-8.

5. Guide to World Science, Reference Guide to Sources of World Scientific Information. Guernsey (U.K.), Francis Hodgson, 1977, 24 vol.

6. World Guide to Libraries. New York, Bowker and Munich, Verlag Dokumentation, 1974, 4 vol.

7. Information Services on Research in Progress, a Worldwide Inventory. Ed. Smithsonian Science Information Exchange (U.S.A.) in co-operation with Unesco. Springfield (U.S.A.), National Technical Information Service (orders within U.S.A. only), and Budapest (P.O.B. 12), Hungarian Central Technical Library and Documentation Centre, 1978, 432 p. NTIS No. PB-282 025/AS or ISBN 963-592-142-X.

8. Annuaire International des Archives/International Directory of Archives. Paris, Presses Universitaires de France, 1975 (same as Archivum, vols. XXII-XXIII, 1972-1973).

B. Regional

1. Directory of Development Documentation and Information Facilities in Asia and the Pacific. Bangkok, United Nations Asian Development Institute, 1976, loose leaf. (N.B. Social sciences and economics are emphasized, but many entries have holdings in science and technology).

2. Directory of Special Libraries and Information Centers. 4th ed. Detroit, Gale Research Company, 1977, 1,039 p. ISBN 0-8103-0453-8 (periodic supplements and 5 vol. subject index available), (coverage: limited to Canada and the United States).

3. Directory of Documentation, Libraries and Archives Services in Africa. 2nd ed. Edit. D. Zidouemba and E. de Grolier. Paris, Unesco, 1977.

4. Guía de Bibliotecas Especializadas e Centros de Documentaçao da America Latina. Prepared under the auspices of FID/CLA. Rio de Janeiro, Instituto Brasileiro de Bibliografia e Documentaçao (now Instituto Brasileiro de Informaçao em Ciencia e Tecnologia). Loose leaf (FID publication 470; FID/CLA special publication No. 3).

5. EUSIDIC Database Guide. Edit. A. Tomberg. Oxford, Learned Information, 1978, 130 p., ISBN 0-904933-13-X.

6. Guide to European Sources of Technical Information. 4th ed. Guernsey, Francis Hodgson, 1976.

7. Organy Nauchno-tehnicheskoj Informatsii Stran-chlenov Centra. Spravochnik. Moscow, International Centre of Scientific and Technical Information (ICSTI), 1971, 288 p. (coverage: scientific and technical information services of the CMEA Member States; availability limited to CMEA Member States).

8. Répertoire Sélectif des Sources d'Information de Langue Française. Edit. M. Saint-Arnaud. Prepared under the auspices of International Development Research Centre (Canada) and Bureau National de l'Information Scientifique et Technique (France). Paris, Documentation Française, 1977, 71 p., ISBN 2-11-000007-4 (coverage: French-language sources in science, technology, economic and social development).

C. Specialized

1. Agriculture:

Agricultural Research in Developing Countries. Vols. 1-3. Rome, FAO, 1978 (directories of research institutions, research workers, research programmes).

2. Education:

Directory of Educational Documentation and Information Services. Paris, Unesco, 1975, 60 p.

3. Environment:

International Directory of IRS Sources. Nairobi (Kenya), United Nations Environment Programme, 1979, 5 vols. UNEP/INFOTERRA D79 A...E plus index UNEP/INFOTERRA 179 A-E (available to designated focal points only, cost free).

4. Industrial development:

(a) National Referral Services for Industry. Worldwide Directory. The Hague, International Federation for Documentation, 1974. FID Publication 522.

(b) UNIDO Guides to Information Sources. Vienna, United Nations Industrial Development Organization, 6-8 issues/year (each issue covers a branch of industry of primary concern to developing countries).

5. Numerical data in science and technology:

CODATA Directory of Data Sources for Science and Technology. Ed. B. Dreyfus. Paris, Committee on Data for Science and Technology, International Council of Scientific Unions, chapters issued in series (already available: Chapter 1 (CODATA Bulletin in No. 24), "Crystallography" 1977; to be published in 1979: Chapter 2, "Astronomy", and Chapter 3, "Geodesy".

6. Products, commercial services and firms:

(a) KOMPASS international registers, published and regularly updated in several countries, e.g.:

Répertoire Général de la Production Française, Annuaire Industriel KOMPASS-France. Paris, SNEI.

Register of British Industry and Commerce. Croydon (United Kingdom), KOMPASS Publishers Ltd.

(b) Thomas Register of American Manufacturers. New York, Thomas Publishing Company, published annually.

7. Series, How to Find Out About ..... Oxford and New York, Pergamon Press (guides to written sources by subject or class of information).

D. Bibliographies of directories

1. International Bibliography of Directories. 5th ed. Munich, Verlag Dokumentation, 1973, 536 p.

2. Harvey, A.P. Directory of Scientific Directories. Guernsey, Francis Hodgson, 1972, 491 p.

It is hoped that the titles in this appendix will serve as useful examples from the wealth of such information available.

Detailed notices of new directories and bibliographies, at the national as well as international level, appear in many sources, e.g.:

FID News Bulletin. The Hague (Netherlands), International Federation for Documentation, monthly.

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